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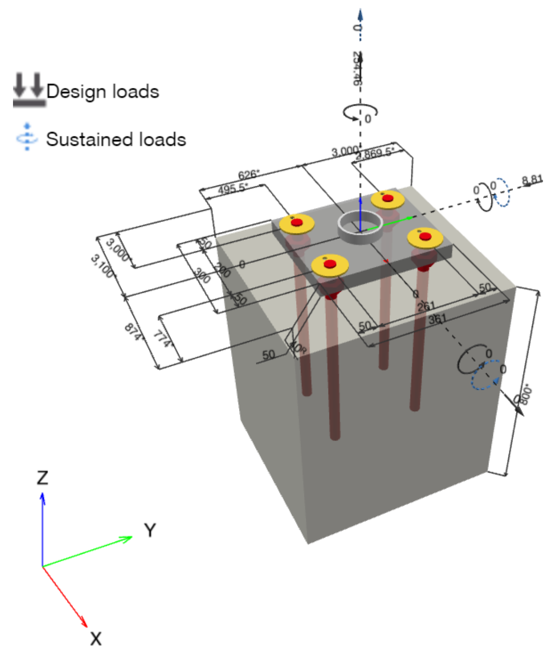
Specifier's comments:

1 Input data

Anchor type and size:	**HIT-HY 200-A + AM (8.8) M30**
Return period (service life in years):	50
Item number:	427812 M30x1000 8.8 (insert) / 2022696 HIT-HY 200-A (mortar)
Hilti Filling Set or any suitable annular gap filling solution	
Effective embedment depth:	$h_{ef,act}$ = 510.0 mm ($h_{ef,limit}$ = - mm)
Material:	8.8
Approval No.:	ETA 11/0493
Issued I Valid:	10/12/2021 | -
Proof:	SOFA based on EN 1992-4 and fib bulletin 58, Chemical
Stand-off installation:	without clamping (anchor); restraint level (baseplate): 2.00; e_b = 50.0 mm; t = 40.0 mm
Baseplate[R] :	l_x x l_y x t = 300.0 mm x 361.0 mm x 40.0 mm; (Recommended plate thickness: not calculated)
Profile:	Pipe, 114,3 x 6,3; (L x W x T) = 114.3 mm x 114.3 mm x 6.3 mm
Base material:	cracked concrete, C20/25, $f_{c,cyl}$ = 20.00 N/mm^2; h = 800.0 mm, Temp. short/long: 0/0 °C, User-defined partial material safety factor γ_c = 1.500
Installation:	**automatic cleaned drilled hole, Installation condition: Dry**
Reinforcement:	No reinforcement or Reinforcement spacing >= 150 mm (any Ø) or >= 100 mm (Ø <= 10 mm)
	no longitudinal edge reinforcement

[R] - The anchor calculation is based on a rigid baseplate assumption.

Geometry [mm] & Loading [kN, kNm]



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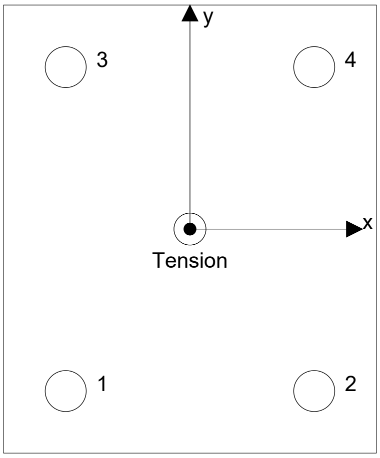
1.1 Load combination

Case	Description	Forces [kN] / Moments [kNm]	Seismic	Fire	Max. Util. Anchor [%]
1	Combination 1	$N = 254.460$; $V_x = 0.000$; $V_y = -8.810$; $M_x = 0.000$; $M_y = 0.000$; $M_z = 0.000$; $N_{sus} = 0.000$; $M_{x,sus} = 0.000$; $M_{y,sus} = 0.000$;	no	no	96

2 Load case/Resulting anchor forces



Anchor reactions [kN]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	63.615	2.203	0.000	-2.203
2	63.615	2.203	0.000	-2.203
3	63.615	2.203	0.000	-2.203
4	63.615	2.203	0.000	-2.203

max. concrete compressive strain: - [‰]
max. concrete compressive stress: - [N/mm^2]
resulting tension force in (x/y)=(0.0/0.0): 254.460 [kN]
resulting compression force in (x/y)=(0.0/0.0): 0.000 [kN]

Anchor forces are calculated based on the assumption of a rigid baseplate.

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3 Tension load EN 1992-4, Section 7.2.1

	Load [kN]	Capacity [kN]	Utilization β_N [%]	Status
Steel failure*	63.615	299.333	22	OK
Combined pullout-concrete cone failure**	254.460	448.928	57	OK
Concrete Breakout failure**	254.460	265.886	96	OK
Splitting failure**	254.460	269.483	95	OK

* highest loaded anchor **anchor group (anchors in tension)

3.1 Steel failure

$$N_{Ed} \leq N_{Rd,s} = \frac{N_{Rk,s}}{\gamma_{M,s}}$$ EN 1992-4, Table 7.1

$N_{Rk,s}$ [kN]	$\gamma_{M,s}$	$N_{Rd,s}$ [kN]	N_{Ed} [kN]
449.000	1.500	299.333	63.615

3.2 Combined pullout-concrete cone failure

$N_{Ed} \leq N_{Rd,p} = \frac{N_{Rk,p}}{\gamma_{M,p}}$ — EN 1992-4, Table 7.1

$N_{Rk,p} = N^0_{Rk,p} \cdot \frac{A_{p,N}}{A^0_{p,N}} \cdot \psi_{g,Np} \cdot \psi_{s,Np} \cdot \psi_{re,N} \cdot \psi_{ec1,Np} \cdot \psi_{ec2,Np}$ — EN 1992-4, Eq. (7.13)

$N^0_{Rk,p} = \psi_{sus} \cdot \tau_{Rk} \cdot \pi \cdot d \cdot h_{ef}$ — EN 1992-4, Eq. (7.14)

$\psi_{sus} = 1$ — EN 1992-4, Eq. (7.14a)

$s_{cr,Np} = 7.3 \cdot d \cdot \sqrt{\psi_{sus} \cdot \tau_{Rk}} \leq 3 \cdot h_{ef}$ — EN 1992-4, Eq. (7.15)

$\psi_{g,Np} = \psi^0_{g,Np} - \left(\frac{s}{s_{cr,Np}}\right)^{0,5} \cdot \left(\psi^0_{g,Np} - 1\right) \geq 1.00$ — EN 1992-4, Eq. (7.17)

$\psi^0_{g,Np} = \sqrt{n} - (\sqrt{n} - 1) \cdot \left(\frac{\tau_{Rk}}{\tau_{Rk,c}}\right)^{1,5} \geq 1.00$ — EN 1992-4, Eq. (7.18)

$\tau_{Rk,c} = \frac{k_3}{\pi \cdot d} \cdot \sqrt{h_{ef} \cdot f_{ck}}$ — EN 1992-4, Eq. (7.19)

$\psi_{s,Np} = 0.7 + 0.3 \cdot \frac{c}{c_{cr,Np}} \leq 1.00$ — EN 1992-4, Eq. (7.20)

$\psi_{ec1,Np} = \frac{1}{1 + \left(\frac{2 \cdot e_{c1,N}}{s_{cr,Np}}\right)} \leq 1.00$ — EN 1992-4, Eq. (7.21)

$\psi_{ec2,Np} = \frac{1}{1 + \left(\frac{2 \cdot e_{c2,N}}{s_{cr,Np}}\right)} \leq 1.00$ — EN 1992-4, Eq. (7.21)

$A_{p,N}$ [mm²]	$A^0_{p,N}$ [mm²]	$\tau_{Rk,ucr,20}$ [N/mm²]	$s_{cr,Np}$ [mm]	$c_{cr,Np}$ [mm]	c_{min} [mm]	$f_{c,cyl}$ [N/mm²]
1,343,831	863,298	18.00	929.1	464.6	495.5	20.00

ψ_c	$\tau_{Rk,cr}$ [N/mm²]	k_3	$\tau_{Rk,c}$ [N/mm²]	$\psi^0_{g,Np}$	$\psi_{g,Np}$
1.000	9.00	7.700	8.25	1.000	1.000

$e_{c1,N}$ [mm]	$\psi_{ec1,Np}$	$e_{c2,N}$ [mm]	$\psi_{ec2,Np}$	$\psi_{s,Np}$	$\psi_{re,Np}$
0.0	1.000	0.0	1.000	1.000	1.000

ψ^0_{sus}	α_{sus}	ψ_{sus}
0.740	0.000	1.000

$N^0_{Rk,p}$ [kN]	$N_{Rk,p}$ [kN]	$\gamma_{M,p}$	$N_{Rd,p}$ [kN]	N_{Ed} [kN]
432.597	673.392	1.500	448.928	254.460

Group anchor ID
1-4

3.3 Concrete Breakout failure

$N_{Ed} \leq N_{Rd,c} = \frac{N_{Rk,c}}{\gamma_{M,c}}$	EN 1992-4, Table 7.1
$N_{Rk,c} = N^0_{Rk,c} \cdot \frac{A_{c,N}}{A^0_{c,N}} \cdot \psi_{s,N} \cdot \psi_{re,N} \cdot \psi_{ec1,N} \cdot \psi_{ec2,N} \cdot \psi_{M,N}$	EN 1992-4, Eq. (7.1)
$N^0_{Rk,c} = k_1 \cdot \sqrt{f_{ck}} \cdot h_{ef}^{1,5}$	EN 1992-4, Eq. (7.2)
$A^0_{c,N} = s_{cr,N} \cdot s_{cr,N}$	EN 1992-4, Eq. (7.3)
$\psi_{s,N} = 0.7 + 0.3 \cdot \frac{c}{c_{cr,N}} \leq 1.00$	EN 1992-4, Eq. (7.4)
$\psi_{ec1,N} = \frac{1}{1 + \left(\frac{2 \cdot e_{N,1}}{s_{cr,N}}\right)} \leq 1.00$	EN 1992-4, Eq. (7.6)
$\psi_{ec2,N} = \frac{1}{1 + \left(\frac{2 \cdot e_{N,2}}{s_{cr,N}}\right)} \leq 1.00$	EN 1992-4, Eq. (7.6)
$\psi_{M,N} = 1$	EN 1992-4, Eq. (7.7)

$A_{c,N}$ [mm²]	$A^0_{c,N}$ [mm²]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	$f_{c,cyl}$ [N/mm²]
2,632,195	2,340,900	765.0	1,530.0	20.00

$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$
0.0	1.000	0.0	1.000	0.894	1.000

z [mm]	$\psi_{M,N}$	k_1	$N^0_{Rk,c}$ [kN]	$\gamma_{M,c}$	$N_{Rd,c}$ [kN]	N_{Ed} [kN]
0.0	1.000	7.700	396.608	1.500	265.886	254.460

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3.4 Splitting failure

$N_{Ed} \leq N_{Rd,sp} = \frac{N_{Rk,sp}}{\gamma_{Msp}}$ EN 1992-4, Table 7.1

$N_{Rk,sp} = N^0_{Rk,sp} \cdot \frac{A_{c,N}}{A^0_{c,N}} \cdot \psi_{s,N} \cdot \psi_{re,N} \cdot \psi_{ec1,N} \cdot \psi_{ec2,N} \cdot \psi_{h,sp}$ EN 1992-4, Eq. (7.23)

$N^0_{Rk,sp} = \min\left(N^0_{Rk,p}, N^0_{Rk,c}\right)$

$A^0_{c,N} = s_{cr,sp} \cdot s_{cr,sp}$ EN 1992-4, Eq. (7.3)

$\psi_{s,N} = 0.7 + 0.3 \cdot \frac{c}{c_{cr,sp}} \leq 1.00$ EN 1992-4, Eq. (7.4)

$\psi_{ec1,N} = \frac{1}{1 + \left(\frac{2 \cdot e_{N,1}}{s_{cr,sp}}\right)} \leq 1.00$ EN 1992-4, Eq. (7.6)

$\psi_{ec2,N} = \frac{1}{1 + \left(\frac{2 \cdot e_{N,2}}{s_{cr,sp}}\right)} \leq 1.00$ EN 1992-4, Eq. (7.6)

$\psi_{h,sp} = \left(\frac{h}{h_{min}}\right)^{2/3} \leq \max\left\{1; \left(\frac{h_{ef} + 1.5 \cdot c_1}{h_{min}}\right)^{2/3}\right\} \leq 2.00$ EN 1992-4, Eq. (7.24)

$A_{c,N}$ [mm²]	$A^0_{c,N}$ [mm²]	$c_{cr,sp}$ [mm]	$s_{cr,sp}$ [mm]	$\psi_{h,sp}$	$f_{c,cyl}$ [N/mm²]
3,125,500	3,283,344	906.0	1,812.0	1.239	20.00

$e_{c1,N}$ [mm]	$\psi_{ec1,N}$	$e_{c2,N}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$	k_1
0.0	1.000	0.0	1.000	0.864	1.000	7.700

$N^0_{Rk,sp}$ [kN]	$\gamma_{M,sp}$	$N_{Rd,sp}$ [kN]	N_{Ed} [kN]
396.608	1.500	269.483	254.460

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4 Shear load EN 1992-4, Section 7.2.2

	Load [kN]	Capacity [kN]	Utilization β_V [%]	Status
Steel failure (without lever arm)*	2.203	179.600	2	OK
Steel failure (with lever arm)*	2.203	26.667	9	OK
Pryout failure**	8.810	531.771	2	OK
Concrete edge failure in direction y-**	4.405	48.906	10	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel failure (without lever arm)

$V_{Ed} \leq V_{Rd,s} = \frac{V_{Rk,s}}{\gamma_{M,s}}$ EN 1992-4, Table 7.2

$V_{Rk,s} = k_7 \cdot V^0_{Rk,s}$ EN 1992-4, Eq. (7.35)

$V^0_{Rk,s}$ [kN]	k_7	$V_{Rk,s}$ [kN]	$\gamma_{M,s}$	$V_{Rd,s}$ [kN]	V_{Ed} [kN]
224.500	1.000	224.500	1.250	179.600	2.203

4.2 Steel failure (with lever arm)

$V_{Ed} \leq V_{Rd,s,M} = \frac{V_{Rk,s,M}}{\gamma_{M,s}}$ EN 1992-4, Table 7.2

$V_{Rk,s,M} = \frac{\alpha_M \cdot M_{Rk,s}}{l_a}$ EN 1992-4, Eq. 7.37

$M_{Rk,s} = M^0_{Rk,s} \cdot \left(1 - \frac{N_{Ed}}{N_{Rd,s}}\right)$ EN 1992-4, Eq. 7.38

$l_a = e_c + \frac{t}{2} + a_3$ EN 1992-4, Eq. 6.2

l [mm]	α_M
85.0	2.00

N_{Ed} / $N_{Rd,s}$	1 - N_{Ed} / $N_{Rd,s}$	$M^0_{Rk,s}$ [kNm]	$M_{Rk,s} = M^0_{Rk,s}$ (1 - N_{Ed}/ $N_{Rd,s}$) [kNm]
0.213	0.787	1.799	1.417

$V^M_{Rk,s} = \alpha_M * M_{Rk,s}$ / l [kN]	γ_{Ms}	$V^M_{Rd,s}$ [kN]	V_{Ed} [kN]
33.333	1.250	26.667	2.203

4.3 Pryout failure (concrete cone relevant)

$V_{Ed} \leq V_{Rd,cp} = \frac{V_{Rk,cp}}{\gamma_{M,c,p}}$		EN 1992-4, Table 7.2
$V_{Rk,cp}$	$= k_8 \cdot \min\{N_{Rk,c}; N_{Rk,p}\}$	EN 1992-4, Eq. (7.39c)
$N_{Rk,c}$	$= N^0_{Rk,c} \cdot \frac{A_{c,N}}{A^0_{c,N}} \cdot \psi_{s,N} \cdot \psi_{re,N} \cdot \psi_{ec1,N} \cdot \psi_{ec2,N} \cdot \psi_{M,N}$	EN 1992-4, Eq. (7.1)
$N^0_{Rk,c}$	$= k_1 \cdot \sqrt{f_{ck}} \cdot h_{ef}^{1,5}$	EN 1992-4, Eq. (7.2)
$A^0_{c,N}$	$= s_{cr,N} \cdot s_{cr,N}$	EN 1992-4, Eq. (7.3)
$\psi_{s,N}$	$= 0.7 + 0.3 \cdot \frac{c}{c_{cr,N}} \leq 1.00$	EN 1992-4, Eq. (7.4)
$\psi_{ec1,N}$	$= \frac{1}{1 + \left(\frac{2 \cdot e_{V,1}}{s_{cr,N}}\right)} \leq 1.00$	EN 1992-4, Eq. (7.6)
$\psi_{ec2,N}$	$= \frac{1}{1 + \left(\frac{2 \cdot e_{V,2}}{s_{cr,N}}\right)} \leq 1.00$	EN 1992-4, Eq. (7.6)
$\psi_{M,N}$	$= 1$	EN 1992-4, Eq. (7.7)

$A_{c,N}$ [mm^2]	$A^0_{c,N}$ [mm^2]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	k_8	$f_{c,cyl}$ [N/mm^2]
2,632,195	2,340,900	765.0	1,530.0	2.000	20.00

$e_{c1,V}$ [mm]	$\psi_{ec1,N}$	$e_{c2,V}$ [mm]	$\psi_{ec2,N}$	$\psi_{s,N}$	$\psi_{re,N}$	$\psi_{M,N}$
0.0	1.000	0.0	1.000	0.894	1.000	1.000

k_1	$N^0_{Rk,c}$ [kN]	$\gamma_{M,c,p}$	$V_{Rd,cp}$ [kN]	V_{Ed} [kN]
7.700	396.608	1.500	531.771	8.810

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4.4 Concrete edge failure in direction y-

$V_{Ed} \leq V_{Rd,c} = \frac{V_{Rk,c}}{\gamma_{M,c}}$		fib Bulletin 58, Table (10.2-1)
$V_{Rk,c}$	$= V^0_{Rk,c} \cdot \psi_{b,u} \cdot \psi_{A,V} \cdot \psi_{h,V} \cdot \psi_{s,V} \cdot \psi_{ec,V} \cdot \psi_{\alpha,V} \cdot \psi_{re,V}$	fib Bulletin 58, Eq. (10.2-5)
$\psi_{b,u}$	$= \frac{1}{\alpha_{b,u}} = \frac{1}{1+\frac{C}{d^{\frac{3}{4}}} \cdot \frac{l_a}{\alpha_M}}$	Hilti Method for anchor design in ungrouted stand-off connections, Hilti, 2023
$V^0_{Rk,c}$	$= k_V \cdot d^{\alpha}_{nom} \cdot l^{\beta}_f \cdot \sqrt{f_{ck}} \cdot c_1^{1.5}$	fib Bulletin 58, Eq. (10.2-5a)
α	$= 0.1 \cdot \left(\frac{l_f}{c_1}\right)^{0,5}$	fib Bulletin 58, Eq. (10.2-5a$_1$)
β	$= 0.1 \cdot \left(\frac{d_{nom}}{c_1}\right)^{0,2}$	fib Bulletin 58, Eq. (10.2-5a$_2$)
$A^0_{c,V}$	$= 4.5 \cdot c_1^2$	fib Bulletin 58, Eq. (10.2-5b)
$\psi_{A,V}$	$= \frac{A_{c,V}}{A^0_{c,V}}$	fib bulletin 58 (07/2011) Section 10.2.5.1.1 b)
$A_{c,V}$		fib bulletin 58 (07/2011) Figure 10.2-4
$\psi_{s,V}$	$= 0.7 + 0.3 \cdot \frac{c_2}{1.5 \cdot c_1} \leq 1.00$	fib Bulletin 58, Eq. (10.2-5d)
$\psi_{h,V}$	$= \left(\frac{1.5 \cdot c_1}{h}\right)^{0,5} \geq 1.00$	fib Bulletin 58, Eq. (10.2-5c)
$\psi_{ec,V}$	$= \frac{1}{1 + \left(\frac{2 \cdot e_V}{3 \cdot c_1}\right)} \leq 1.00$	fib Bulletin 58, Eq. (10.2-5e)
$\psi_{\alpha,V}$	$= \sqrt{\frac{1}{(\cos \alpha_V)^2 + \left(\frac{\sin \alpha_V}{\psi_{90°,V}}\right)^2}} \geq 1.00$	fib Bulletin 58, Eq. (10.2-5f))
$V_{Rk,c}$	$= \frac{V_{Rk,c}(c_{1,n1})}{n_1}$	fib Bulletin 58, Eq. (10.2-6)

l_f [mm]	d_{nom} [mm]	k_V	α	β	$f_{c,cyl}$ [N/mm^2]
240.0	30.00	1.700	0.056	0.052	20.00

$\psi_{b,u}$	C [$\frac{1}{mm^{\frac{3}{4}}}$]	d [mm]	l_a [mm]	α_M
0.814	0.213	30.0	27.5	2.000

c_1 [mm]	$A_{c,V}$ [mm^2]	$A^0_{c,V}$ [mm^2]	$\psi_{A,V}$
756.5	1,687,000	2,575,315	0.655

$\psi_{s,V}$	$\psi_{h,V}$	α_V [°]	$\psi_{\alpha,V}$	$e_{c,V}$ [mm]	$\psi_{ec,V}$	$\psi_{re,V}$
0.905	1.191	0.00	1.000	0.0	1.000	1.000

$\psi_{90°,V}$	$V^0_{Rk,c}$ [kN]	$V_{Rk,c}$ [kN]	n_1	$\gamma_{M,c}$	$V_{Rd,c}$ [kN]	V_{Ed} [kN]
2.000	255.384	146.719	2	1.500	48.906	4.405

Note: Resistance limit acc. to fib bulletin 58 (07/2011) Eq. (10.2-6) is governing

5 Combined tension and shear loads (EN 1992-4, Section 7.2.3)

Steel failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.213	0.012	2.000	5	OK

$\beta_N^\alpha + \beta_V^\alpha \leq 1.0$

Concrete failure

β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
0.957	0.090	1.000	88	OK

$(\beta_N + \beta_V) / 1.2 \leq 1.0$

6 Displacements (highest loaded anchor)

Short term loading:

N_{Sk} = 47.122 [kN] δ_N = 0.0686 [mm]

V_{Sk} = 1.631 [kN] δ_V = 0.0489 [mm]

δ_{NV} = 0.0843 [mm]

Long term loading:

N_{Sk} = 47.122 [kN] δ_N = 0.1569 [mm]

V_{Sk} = 1.631 [kN] δ_V = 0.0816 [mm]

δ_{NV} = 0.1768 [mm]

Comments: Tension displacements are valid with half of the required installation torque moment for uncracked concrete! Shear displacements are valid without friction between the concrete and the baseplate! The gap due to the drilled hole and clearance hole tolerances are not included in this calculation!

The acceptable anchor displacements depend on the fastened construction and must be defined by the designer!

7 Warnings

- The anchor design methods in PROFIS Engineering require rigid baseplates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the baseplate are not considered - the baseplate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required baseplate thickness with CBFEM to limit the stress of the baseplate based on the assumptions explained above. The proof if the rigid baseplate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Checking the transfer of loads into the base material is required in accordance with EN 1992-4, Annex A!
- The design is only valid if the clearance hole in the fixture is not larger than the value given in Table 6.1 of EN 1992-4! For larger diameters of the clearance hole see section 6.2.2 of EN 1992-4!
- Your design has selected filled holes. Please ensure that there is a proper method to fill the annular gap between the fixture and HIT-HY 200-A + AM (8.8) M30and contact Hilti in case of any questions.
- The accessory list in this report is for the information of the user only. In any case, the instructions for use provided with the product have to be followed to ensure a proper installation.
- For the determination of the $\psi_{re,v}$ (concrete edge failure) the minimum concrete cover defined in the design settings is used as the concrete cover of the edge reinforcement.
- Characteristic bond resistances depend on short- and long-term temperatures.
- Edge reinforcement is not required to avoid splitting failure
- Design is only valid if hole is filled to remove clearance, clearance as per EN 1992-4 Table 6.1
- The characteristic bond resistances depend on the return period (service life in years): 50

Fastening meets the design criteria!

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8 Installation data

Baseplate, steel: S 235; E = 210,000.00 N/mm^2; f_{yk} = 235.00 N/mm^2

Profile: Pipe, 114,3 x 6,3; (L x W x T) = 114.3 mm x 114.3 mm x 6.3 mm

Hole diameter in the fixture: d_f = 33.0 mm

Plate thickness (input): 40.0 mm

Recommended plate thickness: not calculated

Drilling method: SafeSet - automatic cleaning

Cleaning: Automatically performed while drilling

Anchor type and size: HIT-HY 200-A + AM (8.8) M30

Item number: 427812 M30x1000 8.8 (insert) / 2022696 HIT-HY 200-A (mortar)

Maximum installation torque: 300 Nm

Hole diameter in the base material: 35.0 mm

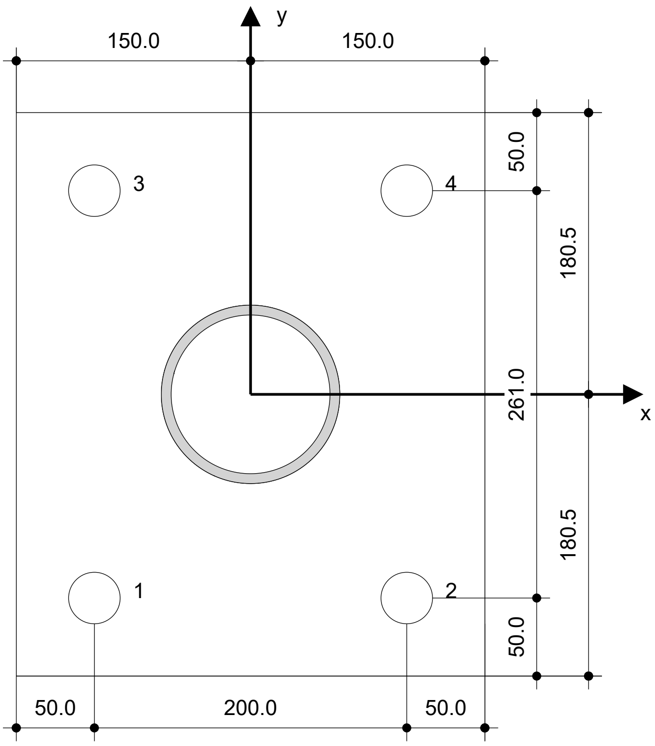
Hole depth in the base material: 510.0 mm

Minimum thickness of the base material: 580.0 mm

Hilti AM threaded rod with HIT-HY 200 injection mortar with 510 mm embedment h_ef, M30, Steel galvanized, SAFEset - automatic cleaning installation per ETA 11/0493, with annular gaps filled with Hilti Filling Set or any suitable gap solutions

8.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Vacuum cleaner	• No accessory required	• Dispenser including cassette and mixer • Torque wrench



Coordinates Anchor [mm]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	-100.0	-130.5	3,000.0	974.0	495.5	3,130.5
2	100.0	-130.5	3,200.0	774.0	495.5	3,130.5
3	-100.0	130.5	3,000.0	974.0	756.5	2,869.5
4	100.0	130.5	3,200.0	774.0	756.5	2,869.5

9 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
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